

ABSTRACT

Apparatus and method for regenerating spent pickling liquor from the acid pickling of a metal are disclosed. Acid pickling of a metal uses a first acid and forms a spent pickling liquor (SPL). A second acid added to the spent pickling liquor, under specific low temperatures produces a metal salt of the second acid. The metal salt of the second acid is crystallized and removed from a regenerated first acid. In one aspect, hydrochloric acid is regenerated from a pickling process for iron or steel, using sulfuric acid as the second acid, and ferrous sulfate heptahydrate crystals are produced. Regenerated hydrochloric acid is recycled to the acid pickling process.